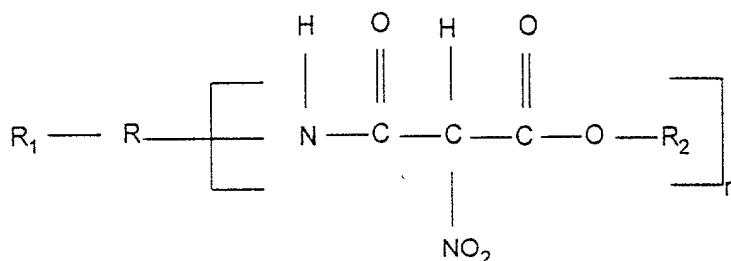


5 We claim:

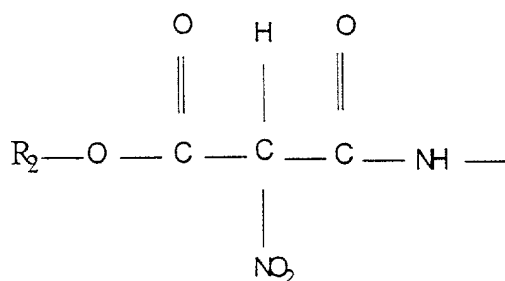
1. A nitrile oxide precursor compound of the general formula:



Formula I

- 10 wherein R is a substituted or unsubstituted C₁₋₁₇ alkyl, alkoxy, cycloalkyl, aromatic or diisocyanate trimer; n is 1-10; R₁ is selected from the group consisting of NCO, CN, H, SO₂Cl, COCl, N(CH₃)₂, C(O)CH₃, C(O)OCH₃, C(O)OC₂H₅, C₆H₅, an acid chloride such as SOCl₂, or another group with reactive functionality, or

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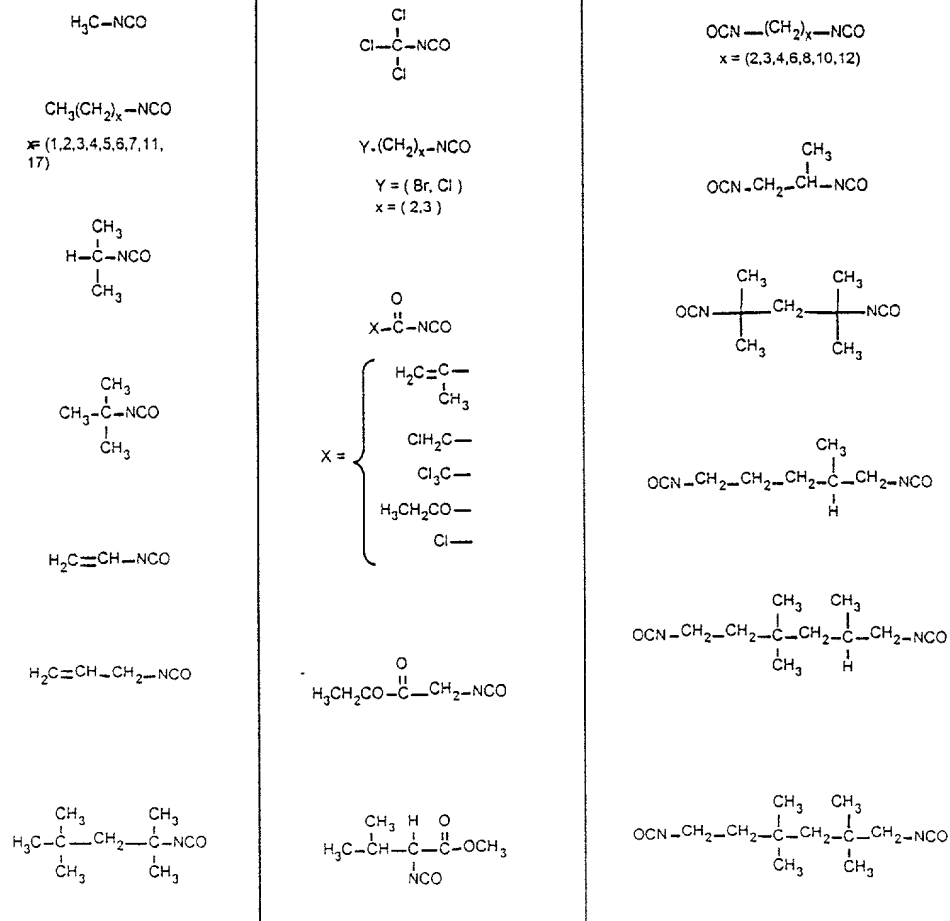
wherein R₂ is branched or unbranched alkyl with 1 to 5 carbon atoms such as ethyl, isopropyl or sec-butyl, and the like; provided that Formula I cannot be derived from p-phenylene diisocyanate.

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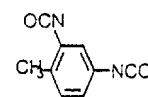
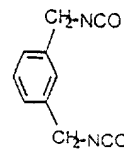
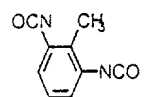
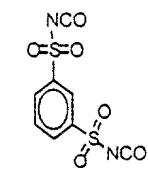
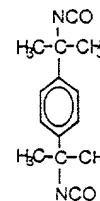
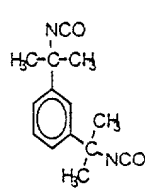
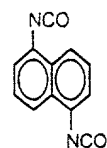
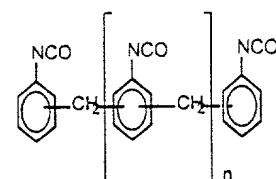
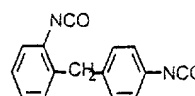
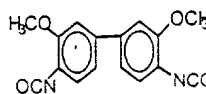
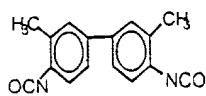
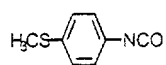
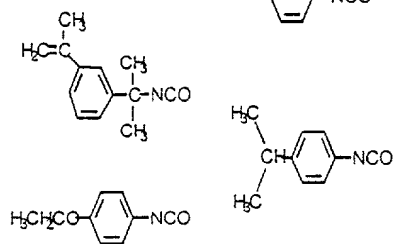
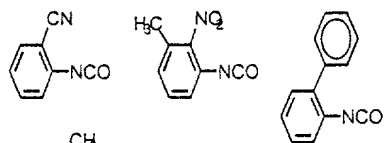
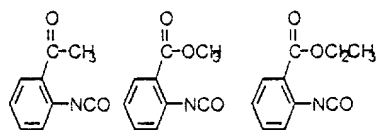
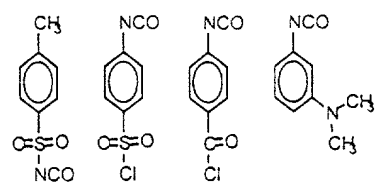
2. A nitrile oxide precursor compound according to Claim 1 wherein R may be branched or unbranched, substituted or unsubstituted with

5 alkyl, sulfate, sulfonate, alkoxy, CN, NO₂ or an aromatic group. R may be a biphenyl group, fused rings or repeating aromatic groups.

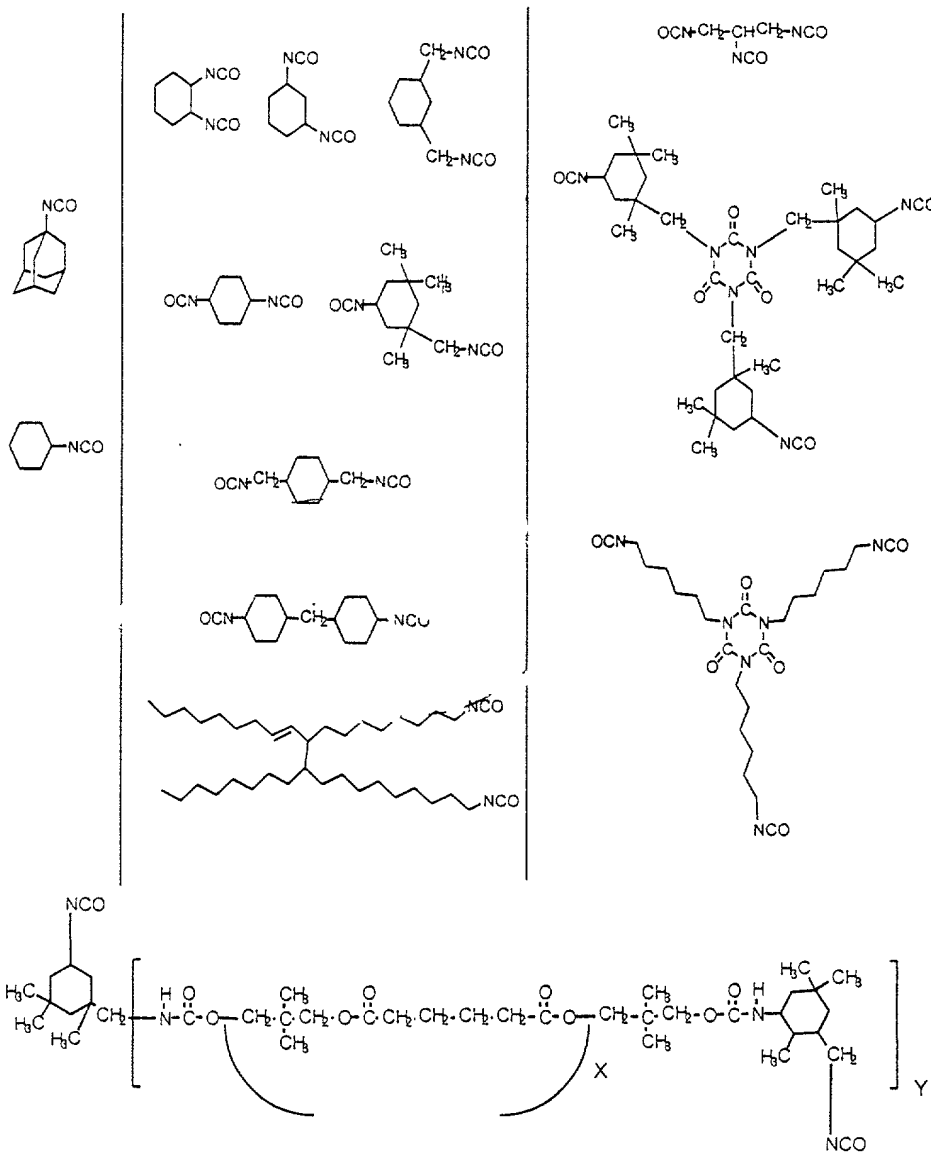
3. A nitrile oxide precursor compound according to Claim 1 wherein R is derived from an aromatic or aliphatic residue of an isocyanate, 10 diisocyanate, polyisocyanate compound or residue of an isocyanate, diisocyanate, or polyisocyanate compound selected from the group consisting of:



5



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wherein in the above structures, $n = 2-4$, and x and y are chosen so that the molecular weight of the polyneopentyl glycol adipate diisophorone terminated isocyanate structure is approximately 1350 and combinations thereof.

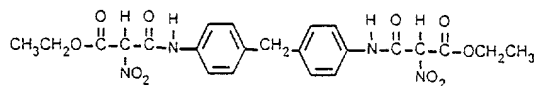
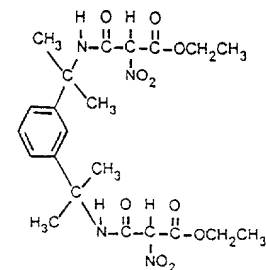
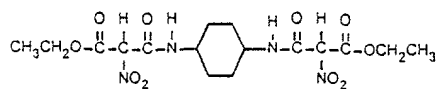
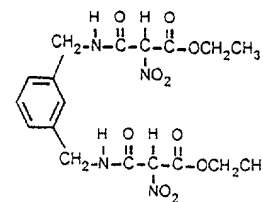
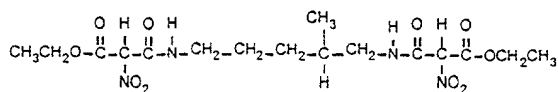
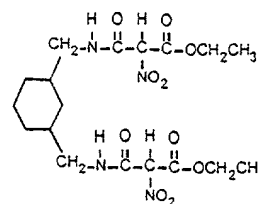
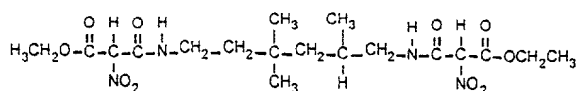
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4. A nitrile oxide precursor compound according to Claim 1 wherein R is derived from an aromatic or aliphatic residue of an isocyanate or diisocyanate compound selected from the group consisting of 4,4'-

- 5 methylenebis(phenyl isocyanate) ("MDI"); DESMODUR W (hydrogenated MDI); isophorone diisocyanate ("IPDI"), 1-(1-isocyanato-1-methyl ethyl)-3-(1-methyl ethenyl)benzene("m-TMI"), isophorone triisocyanate, isophorone, tetramethylenexylenediisocyanate, ("TMXDI") and mixtures thereof.

- 10 5. A nitrile oxide precursor compound according to Claim 1 wherein R is C₃₋₁₇ alkyl.

6. A nitrile oxide precursor compound selected from the group consisting of:



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7. A process for the generation of a nitrile oxide compound comprising the steps of

- 5 a) generating a potassium enolate of ethyl nitroacetate in situ;
 b) isolating said enolate; and
 c) adding to said isolated enolate an isocyanate, diisocyanate or
polyisocyanate, or isofunctional material.

10 8. The process of Claim 7 additionally comprising the step of
mixing the diisocyanate with a polar solvent prior to adding the diisocyanate to
the enolate.

15 9. The process of Claim 8 wherein the polar solvent is selected
from the group consisting of diglyme, monoglyme, glyme, THF, DMF and
DMSO.

20 10. A process for crosslinking a polymer composition comprising
adding a nitrile oxide precursor to the polymer solution and heating the
mixture to form a nitrile oxide in situ and subsequently crosslink.

25 11. A process according to Claim 10 wherein the polymer
comprises one or more pendant or terminal functional groups selected from
the group consisting of alkenes, alkynes, nitriles and isocyanates.

 12. A urethane composition which is stable to temperatures
below 120°C comprising the nitrile oxide precursor compound of Claim 1.

5 13. A pressure sensitive adhesive, reactive hot melt adhesive,
polyurethane dispersion, thermosetting adhesive, thermoplastic adhesive or
coating comprising a nitrile oxide precursor compound according to Claim 1.

10 14. An AB copolymer comprising a nitrile oxide precursor
compound according to Claim 3, wherein A is the nitrile oxide precursor
compound derived from 1-(1-isocyanato-1-methyl ethyl)-3-(1-methyl
ethenyl)benzene ("m-TMI") and B is a compound with olefinic functionality.

15 15. A polyurethane reactive hot melt adhesive comprising a nitrile
oxide precursor compound according to Claim 1.